IN THE CLAIMS

Please enter and consider the following new claims:

Claims 1-54 (Canceled):

Claim 55 (New): A method for identifying pathogen-ligand adhesive interactions under shear flow conditions, wherein the ligand is immobilized on a substrate.

Claim 56 (New): The method of claim 55 comprising:

(a) coating the surface of said substrate with a candidate ligand or target cells expressing a candidate ligand;

(b) moving a fluid across the substrate to create shear flow conditions;

(c) introducing pathogens or soluble pathogen adhesins into said moving fluid; and

(d) observing adhesive interactions between said pathogens and said coated substrate under shear flow conditions to identify pathogen-ligand adhesive interactions.

Claim 57 (New): The method of claims 55, wherein said ligand is a receptor.

Claim 58 (New): The method of claims 56, wherein said ligand is a receptor.

Claim 59 (New): The method of claim 55, wherein said shear flow conditions are selected from conditions that simulate physiological shear as characteristically found in the vascular system, the respiratory system, the gastrointesinal tract and the urinary tract.

Claim 60 (New): The method of claim 55, wherein said substrate is a capillary tube.

Claim 61 (New): The method of claim 55, wherein said substrate is a venule of an intact animal.

Claim 62 (New): The method of claim 56, wherein said observing is conducted in real-time or by off-line image analysis.

Claim 63 (New): The method of claim 56, wherein said substrate coating is a host tissue.

Claim 64 (New): The method of claim 56, wherein said ligands are monoclonal antibodies.

Claim 65 (New): The method of claim 56, wherein said ligands are coated on beads.

Claim 66 (New): The method of claim 56, wherein said ligands are selected from the group consisting of carbohydrate, glycoprotein, protein, or glycolipid matrices.

Claim 67 (New): The method of claim 56, wherein said target cells are selected from the group consisting of endothelial cells, epithelial cells, leukocytes and cells of the nervous system.

Claim 68 (New): The method of claim 56, wherein said target cells are activated to express a candidate ligand.

Claim 69 (New): The method of claim 56, wherein said pathogens are bead-bound or in planktonic form.

Claim 70 (New): The method of claim 56, wherein said pathogens are selected from the group consisting of viruses, bacteria, protozoa and fungi.

Claim 71 (New): The method of claim 56, wherein said observing is conducted before and after introduction of one or more candidate adhesion modifiers or anti-adhesive reagents.

Claim 72 (New): The method of claim 71, wherein said anti-adhesive reagent is a monoclonal antibody.

Claim 73 (New): The method of claim 72, wherein said monoclonal antibody is further used to identify a peptide domain of an adhesive epitope.

Claim 74 (New): The method of claim 73, wherein said peptide domain is identified by screening a phage display library with said antibody.

Claim 75 (New): The method of claim 74, further comprising affinity purification of phage bearing epitopes bound by said monoclonal antibody.

Claim 76 (New): An isolated anti-adhesive monoclonal antibody identified by the method of claim 72.

Claim 77 (New): An isolated adhesive peptide identified by the method of claim 74.

Claim 78 (New): An isolated pathogen adhesin identified by the method of claim 70.

Claim 79 (New): A method of developing vaccine, therapeutic, or diagnostic reagent candidates from the method of claim 55.

Claim 80 (New): The method of claim 79 wherein said candidates are selected from the group consisting of monoclonal antibodies, peptides, oligonucleotides, carbohydrates, and isolated pathogen adhesin molecules.